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PATENT
Serial No. 09/072,412
Docket No. 1538/15

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS	:	S. Schwartz
SERIAL NO.	:	09/072,412
FILED	:	May 4, 1998
FOR	:	MICROPHONE-TAILORED EQUALIZING SYSTEM
GROUP ART UNIT	:	2644
EXAMINER	:	B. Pendleton

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APPEAL BRIEF UNDER 37 CFR 41.37

SIR:

This brief is in furtherance of the Notice of Appeal, filed in this case on December 14, 2004.

1. REAL PARTY IN INTEREST

Stephen Schwartz is the real party in interest for all issues related to this application.

2. RELATED APPEALS AND INTERFERENCES

There are no other appeals, interferences, or judicial proceedings known to Appellant or Appellant's legal representative, which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

3. STATUS OF THE CLAIMS

This application currently contains claims 1-5, 13-15, 28-41. Claims 1-5, 13-15, 28-32, and 36-41 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bruce Bartlett, "Tonal Effects of Close Microphone Placement" ("Bartlett") in view of U.S. Patent No. 6,141,425 to Murayama ("Murayama"). Claims 33-35 are objected to as being allowable but currently in dependent form from a claim that is currently rejected. Claims 1-5, 13-15, 28-32, and 36-41 stand finally rejected and are the subject of this appeal.

4. STATUS OF AMENDMENTS

Appellant submitted an amendment of one of the pending claims in a Response filed on December 14, 2004. In an Advisory Action dated February 17, 2005, the Examiner indicated that the amendments to the claims have been entered. The attached claims reflect the current status of the claims.

5. SUMMARY OF THE CLAIMED SUBJECT MATTER

Generally, a microphone can be placed at a position that is "optimal" for receiving the acoustic sounds emanating from an acoustic instrument. For example, for an acoustic guitar, such a position may be perpendicular from the sound hole of the guitar and a distance away equal to the

length of the guitar. Though potentially an optimal placement for the microphone, such a placement may not be practical in a given environment. This may be due to at least two factors: 1. The guitar may be moved while it is played, thus putting the microphone out of its optimal position, and 2. Other instruments or sound sources may be present that would add to the acoustic sound picked up by the microphone. According to an embodiment of the present invention, a method is presented, which provides for a better output signal for the microphone. Instead of trying to place the microphone at the optimal location, it can be placed proximately to the instrument so that the factors set forth above may be avoided. Then, sounds played from the instrument (and picked up by the microphone) can be compared with reference sounds for the instrument (e.g., as retrieved in a perfect playing atmosphere with an optimal microphone placement). With this information a tailor-made equalizer may be designed to compensate for the differences between the two sound sources. By applying such an equalizer to a microphone, the signal output by the microphone can be made to be more like the output of an optimally placed microphone in a perfect playing atmosphere.

Independent claim 1 recites a method for providing a system for high fidelity reproduction of the acoustic signal from a selected type of acoustical generator including the following operations: 1. determining a selected location proximate to an acoustical generator and 2. placing a first microphone at said selected location; (see, e.g., p. 15, lines 3-13 of the specification). 3. Separately generating sounds from the acoustical generator to produce sounds as picked up by the first microphone (see., e.g., p. 19, lines 8-14) and 4. playing reference sounds of the acoustical generator (see, e.g., p. 19, lines 14-22). 5. Comparing the sounds of the acoustical generator as picked up by the first microphone with the reference sounds as generated by the acoustical generator (see, e.g., p. 19, line 26 to p. 20, line 6). 6. Determining first and second differences in

level over first and second respective discrete frequency ranges between the sounds of the acoustical generator as picked up by the first microphone at the selected location and the reference sounds as generated by the acoustical generator (see, e.g., p. 22, lines 4-14). 7. Assembling a first filter element, said first filter element including components selected to compensate for said first difference in level over said first discrete frequency range; 8. assembling a second filter element, said second filter element including components selected to compensate for said second difference in level over said second discrete frequency range, and 9. constructing an equalizer for the first microphone by arranging said first and second filter elements so as to compensate for the first and second differences between the sounds as picked up by the microphone at the selected location and the reference sounds as generated by the acoustical generator (see e.g., p. 23, lines 16-25 and Fig. 2A, elements 70, 110, and 210).

Independent claim 5 refers to a method for providing a system for high fidelity reproduction of the acoustic signal from a selected type of acoustical generator, the method including the following operations: 1. determining a selected location proximate to a first embodiment of a selected type an acoustical generator and 2. placing a first microphone at said selected location; (see, e.g., page 15, lines 3-13). Separately generating sounds from the acoustical generator, to produce sounds as picked up by the first microphone (see, e.g., p. 19, lines 8-14) and 4. playing reference sounds of the acoustical generator (see e.g., p. 19, lines 14-22). 5. Comparing the sounds of the acoustical generator as picked up by the first microphone with the reference sounds as generated by the acoustical generator (see, e.g., p. 19, line 26 to p. 20, line 6). 6. Replacing the first embodiment of the acoustical generator of step (1) with a next embodiment of the selected type of acoustical generator and 7. repeating steps (2) through (5) with the next embodiment of the selected type of acoustical generator; (see, e.g., p. 22, lines 1-4). 8.

Constructing a tailor-made equalizer for the first microphone, said equalizer including an arrangement of tailored filter elements to compensate for differences between the sounds as picked up by the microphone at the selected location and the reference sounds as generated by the acoustical generators (see, e.g., p. 23, lines 16-25 and Fig. 2A, elements 70, 110, and 210).

Independent claim 13 refers to a system for high fidelity electronic reproduction of the acoustic signal from a selected type of acoustical generator. The claimed system includes a microphone element (see, e.g., element 60 in Fig. 2A) adapted to be placed at a specified selected location proximate to the acoustical generator. An equalizer (see, e.g., element 70, 100, and 210 of Fig. 2A) is provided that includes an arrangement of at least first and second filter elements to compensate for respective first and second differences in level between the sounds of the acoustical generator as picked up by the microphone at the selected location compared with corresponding reference sounds as generated by the acoustical generator over respective first and second discrete frequency ranges (see, e.g. p. 23, lines 16-25).

Independent claim 32 refers to a method for providing a system for high fidelity reproduction of the acoustic signal from a selected type of acoustical generator including the following operations: 1. determining a selected location proximate to an acoustical generator and 2. placing a first microphone at said selected location (see, p. 15, lines 3-13). 3. Separately generating sounds from the acoustical generator to produce sounds as picked up by the first microphone (see, e.g., p. 19, lines 8-14). 4. Playing reference sounds of the acoustical generator (see, e.g., p. 19, lines 14-22). 5. Comparing the sounds of the acoustical generator as picked up by the first microphone with the reference sounds as generated by the acoustical generator (see, e.g., p. 19, line 26 to p. 20, line). 6. Determining first and second differences in level over first and second respective discrete frequency ranges between the sounds of the acoustical generator as

picked up by the first microphone and the reference sounds as generated by the acoustical generator (see e.g., p. 22, lines 4-14). 7. Constructing an equalizer for the first microphone to compensate for the first and second differences between the sounds as picked up by the microphone at the selected location and the reference sounds as generated by the acoustical generator wherein at least one of frequency-bandwidth, gain, and Q parameters of a filter element included to compensate for the differences of at least one of said first and second frequency ranges has a limited variability range of operation based on the determining operation of step 6 (See, e.g., Figs. 2b-5 and p. 23, line 16 to p. 24, line 25.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-5, 13-15, 28-32, and 36-41 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bruce Bartlett, "Tonal Effects of Close Microphone Placement" ("Bartlett") in view of U.S. Patent No. 6,141,425 to Murayama ("Murayama").

7. ARGUMENT

A. Legal Background

Absent anticipation it may be possible to combine two or more patents together to render a claimed invention obvious, and unpatentable, under 35 U.S.C. § 103(a). In determining whether the claims are unpatentable it is necessary to look at what the references actually teach. "It is impermissible within the framework of § 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In Re Wesslau, 147 U.S.P.Q. (BNA) 391, 393 (C.C.P.A. 1965). Accordingly, a prior art reference must

be considered in its entirety, and portions thereof must be taken in proper context. MPEP § 2141.02; Bausch & Lomb, Inc. v. Barnes-Hind, Inc., 230 U.S.P.Q. (BNA) 416, 419 (Fed. Cir. 1986).

B. Argument

§103(a) Rejection

Claims 1-5, 13-15, 28-32 and 36-41 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bruce Bartlett, "Tonal Effects of Close Microphone Placement" ("Bartlett") in view of U.S. Patent No. 6,141,425 to Murayama ("Murayama").

Claims 1 and 13

Claim 1, recites determining first and second differences in level over first and second respective discrete frequency ranges between the sounds picked up by the first microphone and the reference sounds of the acoustical generator. A first filter element is assembled including components to compensate for the first difference in level, and a second filter element is assembled including components to compensate for the second difference in level. Then an equalizer is constructed by arranging the first and second filter elements to compensate for the first and second differences. Bartlett and Murayama, taken individually or in combination, fail to teach or suggest these features.

The Final Office Action at Page 2, line 15 states:

> "It was well known at the time of invention that equalizers "equalize" or compensate for the difference in level between an idea sound and the actual sound. Equalizers were assembled using a plurality of filter elements."

Audio equalizers generally fall into a few distinct categories. Murayama mentions two of these, the 'tone control' and 'graphic equalizer' types. The third common type is the parametric and semi-parametric ('sweep') category. These are supplied in consistent groups, which almost always accommodate the entire audio spectrum (or a very wide part of that spectrum) so as to allow use as a tool for a wide variety of circumstances. It requires skill to use these effectively, and even for one skilled in the art, it often requires much time spent experimenting and adjusting to obtain a desired result.

Barlett, at p. 732, col. 2, par. 1, states as follows:

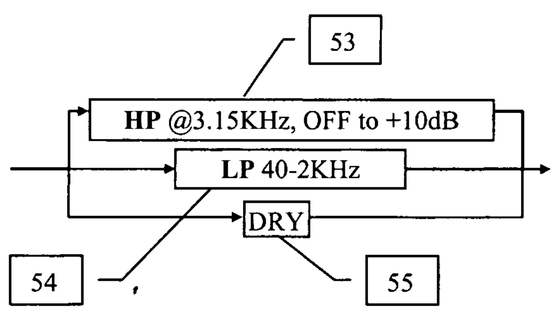
> "For example, if a steel-string guitar must be miked 80 mm (3 in) from the sound hole to reduce feedback or leakage, it can be made to sound more "natural" by sharply rolling off low frequencies below 300 Hz.

To accomplish this using a graphic equalizer, as suggested by the examiner's references to Murayama, would require moving several controls unequally at once, or sequentially moving those several controls. Additionally, the sound quality would likely be compromised because of inter-band distortions caused by the overlapping regions between each adjacent pair of equalizer elements. Beyond the constraints of Murayama, it is more commonly known in the art to use either semi-parametric and/or parametric equalizers for this purpose, but it is also understood that these require skill and time to adjust for a desired result. Bartlett does not say what type of device to use to make the sound more "natural" (he never mentions any specific devices at all), but a high pass

filter with a fixed pole at 300hz is not commonly available to those in the art, so one would use (e.g.) a variable filter, which has more components in construction, and is therefore both noisier and more expensive.

Embodiments of the present invention provide an unusual and greatly simplified apparatus that provides improvement over the use of existing equalizer types by reducing the adjustments necessary to obtain a similar or superior result, and by improving the sound quality because of the reduced number of inter-band distortions; the same simplification of circuitry also reduces the cost and noise of the device. Specifically, the method of the present invention (e.g. Claim 1, steps 7, 8 and 9) produces unexpected and unique circuit elements and arrangements to accomplish this. One instance is the use of parallel filter circuits, such as elements 53 and 54 in FIG 5 of the present application (see below), which enable intuitive and hearable adjustments to both sides of a region, not possible with any standard element or arrangement of elements.

Figure 5



Claim 5

With respect to steps 6 and 7 of claim 5, a device is created that may be easily adjustable for any instance in an instrument class, but also is an ideal design or calibration tool for designing a 'fixed' implementation for a specific instrument that is inexpensive to construct. For example, one

could tune the device in the normal manner to a specific (e.g.) guitar, measure potentiometer settings, and construct a similar duplicate device, but replacing variable potentiometers with fixed resistors of the measured values. This simplified design may also allow the simplification of the enclosure (fewer holes to drill, smaller size, etc.), and may be built to affix permanently to (or inside of) the specific instrument it was calibrated to.

The Final Office Action states that this is raised in the Bartlett reference (p. 6, line 9):

> "Per claim 5, Bartlett runs his experiment with different embodiments of an acoustic guitar."

However, the Appellant respectfully disagrees. Bartlett describes experiments using one steel string guitar (Guild D-40, p.728 illustrations) and one nylon string guitar (Sakura, p.729 illustrations). Steel and nylon guitars are in many ways considered different instruments, and this is how Bartlett treats them, rather than as two embodiments of one type. Nylon string guitars are used exclusively in classical music (and occasionally in a few folk styles), so the players and styles associated with them are different, and a recording engineer will commonly choose different microphones for the two types. If for no other reason, the nylon string guitar is so much quieter than the steel string guitar that it needs special consideration. Combined with the general tone of Bartlett's assumptions, e.g. at p. 737 Col. 1, Sec. 11 Conclusion, Par 2:

> "Final adjustments should be done by ear to suit the particular instrument and application…"

It is unlikely that Bartlett meant, or that one skilled in the art would infer, that Bartlett was implying experimenting with multiple embodiments of an instrument type in order to gain the benefits as taught in claim 5 of the present application.

Claim 13

With respect to claim 13, the Final Office Action at p. 6, line 11 states:

> "As to claim 13, Bartlett discloses a microphone element placed proximate to an acoustical generator..."

Throughout his paper, Bartlett seeks the logical solution that is commonly known in the art: first, find a best approximation to the reference, then fix it with available tools. This is a complex process that differs with each change of acoustic generator and environment, and involves expensive tools and a knowledgeable operator. Embodiments of the present invention produce an apparatus that eliminates the need for the process Bartlett describes. Though not specifically detailed therein, Bartlett's process may include:

1- Choosing a reference location and putting a reference microphone there,

2- Experimenting with close microphone positions to find a placement that most accurately approximates the reference, and

3- Using an equalizer to compensate for differences between the reference of step 1 and the close mic of step 2.

There is no implication in Bartlett of an advantage to choosing any selected location, nor does Bartlett ever select any particular location. Bartlett, at p. 737, col. 1, par. 3, states:

> "Other locations not tested in this study may work as well or better."

and at p. 737, col. 1, sec. 11, Conclusion, par. 1, states:

> "...there is good reason to experiment with various microphones and microphone positions to find the best

> compromise."

Also, at p. 737, Col. 1, Sec. 11, Conclusion, par. 2:

> "Final adjustments should be done by ear to suit the particular instrument and application."

And at p. 737, Col. 1, Conclusion, par. 3:

> "The intent of this report has been not to define the ideal microphone technique for a particular instrument, but rather to indicate the general tonal effects that can be expected in various close microphone positions."

Embodiments of the present invention eliminate the above described step 2 of Bartlett, and greatly simplifies the above described step 3 of Bartlett, by considering these steps as part of a comprehensively considered method. In embodiments of the method of the present invention, the choice of the close microphone placement is affected by knowing that a specially designed and constructed processor (e.g., a uniquely constructed equalizer) will be able to easily compensate for certain differences that are not easily, or sometimes even feasibly, compensated for with standard, off-the-shelf equalizer types. The method leads to choices for microphone placements that Bartlett would not consider possible, because they are very far from approximating the reference. Conversely, this method of the present invention allows for a specialized processor that is relatively simple to both construct and use by purposely limiting the close microphone placement, as described in the claims, for example at claim 1, step 1: to "determining ***a selected location*** proximate to an acoustical generator", and claim 13: "...a microphone element adapted to be placed at a specified selected location proximate to the acoustical generator; ..."

An advantage of this feature of choosing a fixed location, is that it may free the specialized processor from having to be able to compensate for the problems that arise at other locations

(whether or not other locations are normally considered 'better' or 'worse' than the one selected in the method), which thus produces a specialized processor that greatly reduces the numbers of adjustments that an operator needs to make in an embodiment that allows for adjustment, and allows for the other advantages of circuit simplification (lower cost, noise, etc.). None of these advantages are available by using the standard process of experimenting to find a good approximation and using equalizers to compensate for differences.

General Discussion

Not only does Bartlett not teach key features of the present invention, he concludes (or believed all along) and specifically states that what he teaches is an inferior solution. At p. 737, col. 1, sec. 11, conclusion, par. 2, Barlett states:

> "... if a "natural" timbre is desired, an instrument generally should be miked only as close as necessary (assuming that the room acoustics are suitable). If very close placement is a must, the instrument can be equalized as suggested in this report, as a beginning ..."

A key feature of embodiments of the present invention is to overcome this limitation by demonstrating that a result equal or superior to the reference can be obtained with very close mic placement, if the method of the present invention is followed and a suitable device is designed and constructed to accomplish the necessary corrections.

Bartlett also does not teach that any consistent improved solution is to be sought or expected. At p. 733, first sentence, he states:

> "... equalization does not always accurately compensate for the spectral effects of close microphone placement. This is because harmonics missed by close microphone placement cannot always be recovered by equalization, and because the equalization

> required varies from note to note. Still, some general equalization is better than none at all."

A method of the present invention makes the note to note variation a known quantity that is consistent enough to accommodate for much more accurately than the normal process of determining a mic position and compensating for it with standard equalizer types. Under some circumstances, the fixed position of the present invention must be accurate within tolerances of less than one inch. Bartlett does not address this issue, because he is not thinking that it is significant, since he assumes each instance will be treated anew. Thus, Bartlett misses a key feature of the present invention, that of (e.g.) Claim 1, Step 1.

Appellant contends that there is a complete lack of any mention or implication of any designed embodiment in Bartlett. Bartlett states at p. 735, col. 1, paras. 1 and 2:

> "If the recording microphone has a response that does not complement the spectral effect of close placement, then its response must be compensated for by equalization." ... "Thus this microphone requires more equalization to make the guitar sound "natural" than does a flat-response microphone." ... "The sound engineer tends to equalize the recording to compensate for peaks and dips in the monitor frequency response."

All of the processes and actions described in the Bartlett reference are things that the specifically mentioned sound engineers do, which includes using available equipment to accomplish the task described. No mention of any electrical design is made, nor is there any language used that would imply any activity or process related to electrical engineering. A search in the reference for the word "Equalizer" will show that every appearance is as an action, in the context of using an unspecified and unmentioned Equalizer; no suggestions for equalizer types are ever made, and so no intimations of them can be inferred.

The language of the Final Office Action is almost always in agreement with this (see p. 2, line 13):

> "The combination of the references is based on one of ordinary skill in the audio art realizing that over the discrete frequency ranges, <u>an equalizer can be used to compensate</u> for the difference is [sic] level."

and at p. 4, line 20 [underline added]:

> "Murayama et al state that for adjusting the sound quality of an audio signal depending on the playback sound field, a graphic equalizer circuit for splitting the frequency spectrum into plural bands and for changing the gain in each of the split bands <u>is used</u> extensively. Accordingly, with this teaching, which demonstrated a well known practice in the art, one would have been <u>motivated to use</u> a graphic equalizer to correct for the differences in the closely miked sounds and reference sounds."

and at p. 5, line 17 [underline added]:

> "Applying the teachings of Murayama et al, per equalizers and sound adjustment, to the Bartlett reference, it would have been obvious to one of ordinary skill in the art at the time of invention <u>to use the graphic equalizer</u> of Murayama et al, which disclose first and second filter elements with first and second discrete frequency ranges, to achieve the inverse spectral curve of the differences between the sounds of the closely miked acoustical generator and the reference sounds."

and at p. 6, line 7:

> "As a result, the <u>listener could then manipulate a graphic equalizer</u> to make up for the difference in sounds."

One instance where the language in the Office Action differs from this is at p. 2, line 17:

> "... one of ordinary skill in the art would have constructed first and second filter elements to compensate for the differences between closely miked sounds and reference sounds."

Appellant respectfully disagrees with the examiner's statement here, because those skilled in the audio art generally know nothing about constructing filters, they are only skilled in USING whatever filters are available. As noted above, the language of Bartlett is entirely directed to using existing devices, never implying the construction of new or specialized (or any) devices. Also, the entire Bartlett reference takes place in and is directed at the environment of the audio engineer, where a time frame of a few man hours is typicfal, and where the time is generally paid for by a client. Researching, designing, testing and building the specialized devices of the present invention is a process that <u>commonly takes months or years to accomplish</u>. Thus, there is no motivation for anyone skilled in the art to re-interpret Bartlett to the domain of design and construction, as outlined in (e.g.) steps 7-9 of Claim 1 of the present invention. The reference of Muramaya does not make up this deficiency.

The Office Action states at p. 6, line 11:

> "...Murayama et al teach an equalizer with at least first and second filter elements to compensate for the first and second differences in level between the miked sounds and reference sounds."

Appellant respectfully disagrees. The reference of Murayama makes no mention of any circumstance for use or application except in the broadest sense while introducing the prior art. See, e.g., col. 1, lines 11-19:

> "For adjusting the sound quality of the audio signal depending on the conditions of the sound source or the playback sound field or on the hearing power or the preference of the listener, a tone control circuit for continuously changing the gain of a specified frequency range or a graphic equalizer circuit for splitting the frequency spectrum into plural bands and for changing the gain in each of the split bands is used extensively."

The specification and Claims of Murayama go on to describe a way to design a certain type of filter element, but not in any context, only as a circuit design improvement unrelated to any specific use.

Claim 1, step 7 of the present invention states, for example, "(7) assembling a first filter element, said first filter element including components selected to compensate for said first difference in level over said first discrete frequency range"

Murayama notes that a filter element can be designed to compensate for some difference over some frequency range, but there is nothing to imply an advantage to doing so for the circumstances of the present invention as recited in the claim. Thus, the Murayama reference does not fulfill the omission in Bartlett to teach the steps of the present invention as described in (e.g.) claim 1, steps 7, 8, and 9.

<u>Claims 31-32</u>

With respect to claims 31-32, the Office Action at p. 6, line 18 states:

> "As to claims 31 and 32, figure 2 of Murayama et al demonstrates that the graphic equalizer has a limited range of gain values."

Claim 31 of the present application recites, "The method of claim 1 wherein at least one of frequency-bandwidth, gain, and Q parameters of at least one of said first and second filter elements has a limited variability range of operation based on the determining operation of step 6."

Any equalizer has a limited range of gain values, if for no other reason than infinite gain is impossible. The range of gain values in FIG 2 of Murayama (and the other parameters) are arbitrarily chosen, and as in virtually all the prior art, are all the same for all the elements, except for the different frequency centers. Claims 31 and 32, and elsewhere in the present invention, indicate specific choices for those ranges based on the determinations made in step 6, which means that an embodiment of the present invention is likely to have different bandwidth range sizes, different gain ranges, and different Q parameters for each filter element. Prior art equalizers are not designed with a specific goal in mind, and so are designed to allow use for an infinite number of circumstances, and they accomplish this by providing a large range of adjustments for everything, which makes them complicated to use and expensive. Embodiments of the present invention create limited targeted solutions which are easier to use and cheaper to construct, though they may not be very useful in circumstances other than that for which they were designed as based on the determining operation of step 6.

Claims 36-38

With respect to claims 36-38, the Office Action at p. 6, line 19 states:

> "Regarding claims 36-38, it was obvious that the gain adjustment of one (first) filter element would be different from the gain adjustment of the other (second) filter element since the level differences vary in the signal spectrum as shown in the figures of Bartlett."

Claim 36 of the present application recites, "The method of claim 1 wherein a range of gain adjustment of the first filter element differs from a range of gain adjustment of the second filter element."

The adjustments as recited in claims 36-38 refer to the RANGE of adjustment available in a filter element. Bartlett only speaks passively of the need to make an adjustment ("...equalize [this]..", "...use equalization [to do that]..."). Since he never mentions any device or potential range of adjustments, it cannot be inferred from Bartlett to design filter elements with specific ranges.

<u>Claims 39-41</u>

With respect to claims 39-41, the Office Action at p. 7, line 1 states:

> "As to claims 39-41, Q parameters differ among the first and second filter elements in the apparatus of Murayama."

Claim 39 of the present application recites, "The method of claim 1 wherein at least one of frequency-bandwidth, filter order, and Q parameters differs between said first and second filter elements."

All of the elements seen in Muramaya indicate a similar shape and size, and thus show no variation in the frequency-bandwidth, filter order, or Q parameters. All the filter elements (see FIG S 1,2, 8, 11) are shown with equivalent size and shape, even when they are shown as varying from one frequency range to another (as in FIGS 8 and 11). Additionally, there is no attempt to show any advantage to having different filter element sizes. Conversely, Muramaya teaches the

opposite, as in Col. 8 Lines19-28, wherein he states "Since it is necessary to have a constant sharpness of resonance Q…".

In view of the above, reconsideration and withdrawal of the rejection of the claims under 35 U.S.C. § 103(a) is in order. Appellant respectfully requests that this rejection be reversed.

CONCLUSION

Appellant respectfully requests that the Board of Patent Appeals and Interferences reverse the Examiner's decision rejecting claims 1-5, 13-15, 28-32, and 36-41 and direct the Examiner to pass the case to issue.

The Commissioner is hereby authorized to charge the appeal brief fee of $250.00 (small entity) and any additional fees which may be necessary for consideration of this paper to Kenyon & Kenyon Deposit Account No. 11-0600. A copy of this sheet is enclosed for that purpose.

Respectfully submitted,

Date: April 14, 2005

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APPENDIX

(Brief of Appellant S. Schwartz
U.S. Patent
Application Serial No. 09/072,412)

8. CLAIMS ON APPEAL

The claims in their current form are presented below:

1. A method for providing a system for high fidelity reproduction of the acoustic signal from a selected type of acoustical generator, the method comprising:

(1) determining a selected location proximate to an acoustical generator;

(2) placing a first microphone at said selected location;

(3) separately generating sounds from the acoustical generator to produce sounds as picked up by the first microphone;

(4) playing reference sounds of the acoustical generator;

(5) comparing the sounds of the acoustical generator as picked up by the first microphone with the reference sounds as generated by the acoustical generator;

(6) determining first and second differences in level over first and second respective discrete frequency ranges between the sounds of the acoustical generator as picked up by the first microphone at the selected location and the reference sounds as generated by the acoustical generator;

(7) assembling a first filter element, said first filter element including components selected to compensate for said first difference in level over said first discrete frequency range;

(8) assembling a second filter element, said second filter element including components selected to compensate for said second difference in level over said second discrete frequency range;

(9) constructing an equalizer for the first microphone by arranging said first and second filter elements so as to compensate for the first and second differences between the sounds as picked up by the microphone at the selected location and the reference sounds as generated by the acoustical generator.

2. The method of claim 1 wherein in said placing step, said first microphone is attached to the acoustical generator.

3. The method of claim 1 wherein the step of comparing the sounds picked up by the first microphone with reference sounds of the acoustical generator is made by listening directly to the two sounds.

4. The method of claim 2 wherein the step of comparing the sounds picked up by the first microphone with reference sounds of the acoustical generator is made by listening directly to the two sounds.

5. A method for providing a system for high fidelity reproduction of the acoustic signal from a selected type of acoustical generator, the method comprising:

(1) determining a selected location proximate to a first embodiment of a selected

type an acoustical generator;

(2) placing a first microphone at said selected location;

(3) separately generating sounds from the acoustical generator, to produce sounds as picked up by the first microphone;

(4) playing reference sounds of the acoustical generator;

(5) comparing the sounds of the acoustical generator as picked up by the first microphone with the reference sounds as generated by the acoustical generator;

(6) replacing the first embodiment of the acoustical generator of step (1) with a next embodiment of the selected type of acoustical generator:

(7) repeating steps (2) through (5) with the next embodiment of the selected type of acoustical generator;

(8) constructing a tailor-made equalizer for the first microphone, said equalizer including an arrangement of tailored filter elements to compensate for differences between the sounds as picked up by the microphone at the selected location and the reference sounds as generated by the acoustical generator.

6. – 12. (Canceled)

13. A system for high fidelity electronic reproduction of the acoustic signal from a selected type of acoustical generator, the system comprising:

a microphone element adapted to be placed at a specified selected location proximate to the acoustical generator; and

an equalizer that includes an arrangement of at least first and second filter elements to

compensate for respective first and second differences in level between the sounds of the acoustical generator as picked up by the microphone at the selected location compared with corresponding reference sounds as generated by the acoustical generator over respective first and second discrete frequency ranges.

14. (Previously Presented) The system of claim 13 wherein the microphone element is further adapted to be attached to a preselected location on the acoustical generator.

15. (Currently Amended) The system of claim [14] 13 wherein said equalizer includes at least one digital filter.

16. – 27. (Canceled)

28. The method of claim 1 wherein in said constructing step, the tailored filter elements include variable controls.

29. The method of claim 5 wherein in said constructing step, the tailored filter elements include variable controls.

30. The system of claim 13 wherein in said equalizer, the tailored filter elements include variable controls.

31. The method of claim 1 wherein at least one of frequency-bandwidth, gain,

and Q parameters of at least one of said first and second filter elements has a limited variability range of operation based on the determining operation of step 6.

32. A method for providing a system for high fidelity reproduction of the acoustic signal from a selected type of acoustical generator, the method comprising:

(1) determining a selected location proximate to an acoustical generator;

(2) placing a first microphone at said selected location;

(3) separately generating sounds from the acoustical generator to produce sounds as picked up by the first microphone;

(4) playing reference sounds of the acoustical generator;

(5) comparing the sounds of the acoustical generator as picked up by the first microphone with the reference sounds as generated by the acoustical generator;

(6) determining first and second differences in level over first and second respective discrete frequency ranges between the sounds of the acoustical generator as picked up by the first microphone and the reference sounds as generated by the acoustical generator; and

(7) constructing an equalizer for the first microphone to compensate for the first and second differences between the sounds as picked up by the microphone at the selected location and the reference sounds as generated by the acoustical generator wherein at least one of frequency-bandwidth, gain, and Q parameters of a filter element included to compensate for the differences of at least one of said first and second frequency ranges has a limited variability range of operation based on the determining operation of step 6.

33. The method of claim 1 wherein at least one of the first and second filter elements includes

at least two adjustable parameters selected from the following: gain adjustment

parameter, frequency adjustment parameter, bandwidth adjustment parameter, and filter shape adjustment parameter; and

a single control to make concurrent, predetermined changes to said at least two adjustable parameters.

34. The method of claim 5 wherein at least one of the first and second filter elements includes

at least two adjustable parameters selected from the following: gain adjustment parameter, frequency adjustment parameter, bandwidth adjustment parameter, and filter shape adjustment parameter; and

a single control to make concurrent, predetermined changes to said at least two adjustable parameters.

35. The system of claim 13 wherein at least one of the first and second filter elements includes

at least two adjustable parameters selected from the following: gain adjustment parameter, frequency adjustment parameter, bandwidth adjustment parameter, and filter shape adjustment parameter; and

a single control to make concurrent, predetermined changes to said at least two adjustable parameters.

36. The method of claim 1 wherein a range of gain adjustment of the first filter element differs from a range of gain adjustment of the second filter element.

37. The method of claim 5 wherein a range of gain adjustment of the first filter element differs from a range of gain adjustment of the second filter element.

38. The method of claim 13 wherein a range of gain adjustment of the first filter element differs from a range of gain adjustment of the second filter element.

39. The method of claim 1 wherein at least one of frequency-bandwidth, filter order, and Q parameters differs between said first and second filter elements.

40. The method of claim 5 wherein at least one of frequency-bandwidth, filter order, and Q parameters differs between said first and second filter elements.

41. The method of claim 13 wherein at least one of frequency-bandwidth, filter order, and Q parameters differs between said first and second filter elements.

9. EVIDENCE APPENDIX

No further evidence has been submitted with this Appeal Brief.

10. RELATED PROCEEDINGS APPENDIX

Per Section 2 above, there are no related proceedings to the present Appeal.